

Appl. No. 10/065,192
Amdt. Dated February 23, 2005
Reply to Office action of November 30, 2004

REMARKS/ARGUMENTS

This case has been carefully reviewed in light of Office Action dated November 30, 2004. Claims 1, 4, 6 and 7 were rejected under 35 USC §102(e) as being anticipated over Nguyen et al. (US Patent 6,748,112). Claims 2, 3, 5, 8-22 were rejected under 35 USC §103(a) as being anticipated over Nguyen et al. (US Patent 6,748,112) in view of Dreyfus et al. (US 4,226,536). Claim 1 has been amended. Claim 2 has been canceled. No new matter has been added. Claims 1 and 3-22 remain pending in this application. Reconsideration in view of the above amendments and following remarks is respectfully requested.

Claim 1 has been amended to incorporate the subject matter of claim 2, now canceled. No new matter has been added.

Claims define allowable subject matter over the applied art

Claims 1, 4, 6 and 7 were rejected under 35 USC 102(e) as being anticipated by Nguyen et al (US Pat. No. 6,748,112). The present Invention, as claimed in amended independent claims 1 is are patentable over the Nguyen reference. "Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." W.L. Gore & Associates v. Garlock, Inc., 220 USPQ 303, 313 (Fed. Cir. 1983). The Nguyen reference does not disclose each element of the present invention as claimed in independent claim 1. Amended independent claim 1 is directed to a system for the non-contact measurement of a surface of a complex part shape. The system comprises a support on which the part is mounted for holding the part in a predetermined fixed position and a large area optical sensor positioned so the part is substantially within the sensor's field of view at the distance from the sensor where the part is mounted on its support, the optical sensor measuring surface features of the part. The system further comprises a positioning means on which the optical sensor is installed for moving the optical sensor over the surface of the part in a non-contact manner to locate surface features of the part in a co-ordinate system. The system further includes a high resolution point sensor for locating and measuring the edges of the part, the point sensor also being installed on the positioning means and moved over the part in a non-contact manner to locate the edges of the part's surface and a processor processing the surface feature information and comparing the information with corresponding information from either a master part model or a reference part to determine acceptability of the part.

The Nguyen reference does not teach or disclose each and every element of independent claim 1. Specifically, the Nguyen reference does not teach, suggest or disclose a high-resolution point sensor for locating and measuring the edges of the part. The Nguyen reference is directed to an apparatus for finding shape deformations. An object to be inspected is positioned within the sensing range of an imaging device. The imaging device may be a coordinate measurement machine (CMM) or a full-field non-contact range sensor. The imaging device is adapted to scan the surface of the blade (column 4, lines 18-36). Nowhere does Nguyen teach, suggest or disclose using a high-resolution point sensor for locating and measuring the edges of the part and adapted to locate the edges of the part's surface as described in Applicants claim 1.

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Therefore, the present invention, as claimed in independent claims 1 is not anticipated by the Nguyen reference. Claims 4, 6 and 7 depend directly or indirectly from claim 1. Accordingly, Applicants submit that claims 4, 6, and 7 are allowable by dependency. Thus, it is respectfully requested that the rejection of claims 1, 4, 6 and 7 under 35 USC §102 (e) be withdrawn.

Claims 2, 3, 5, 8-22 were rejected under 35 USC 103(a) as being obvious over Nguyen et al (US Pat. No. 6,748,112) and further in view of Dreyfus et al. (US 4, 226, 536). Claim 2 has been canceled. As discussed with reference to the 102(e) rejection, Nguyen does not teach, suggest and disclose each and every element of the Applicants invention. The Dreyfus reference does not overcome the above cited limitations of Nguyen. Dreyfus discloses a non-contacting, electro-optical system adapted automatically to measure the contours of helicopter rotor blades and other shaped objects at high speed and with a high degree of accuracy. Specifically, Dreyfus discloses an electro-optical triangulation rangefinder assembly is activated to cause the illuminator to swing through a sector whereby the laser beam spot scans across the surface of the object being tested from one edge to the other (Abstract, column 5, lines 45-50). Nowhere does Dreyfus teach suggest or disclose a high-resolution point sensor for locating and measuring the edges of the part and adapted to locate the edges of the part's surface as described in Applicants claims 1, 12 and 18.

Thus, no reasonable combination Nguyen and Dreyfus would obtain Applicants' recited invention of a system for the non-contact measurement of a surface of a complex part shape using an optical sensor and a high resolution edge sensor as described in claims 1, 12 and 18.

Further there is no motivation in Nguyen to combine it with Dreyfus. Nguyen describes is directed an apparatus for finding shape deformations and Dreyfus discloses a non-contacting, electro-optical system adapted automatically to measure the contours of helicopter rotor blades and other shaped objects. Therefore, Nguyen (either alone or in combination with Dreyfus) does not disclose, teach or suggest disclose applicant's invention as cited in claims 1, 12 and 18.

Obviousness cannot be established absent a teaching or suggestion in the prior art to produce the claimed invention. For a prima facie case of obviousness, the Examiner must set forth the differences in the claim over the applied references, set forth the proposed modification of the references, which would be necessary to arrive at the claimed subject matter, and explain why the proposed modification would be obvious. It is well-established law that the mere fact that references may be combined or modified does not render the resultant modification or combination obvious unless the prior art suggests the desirability of the modification or combination.

Therefore, the present invention, as claimed in amended claims 1, 12 and 18 are patentable over the Nguyen reference in view of Dreyfus et al. Claims 2, 3, 5, 8 and 11 depends directly or indirectly from claim 1 and claims 13-17 depends directly or indirectly from claim 12 and claims 19-22 depend directly or indirectly from claim 18 respectively and are allowable by dependency. Withdrawal of the rejections is respectfully requested, and

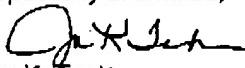
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allowance of claims 2, 3, 5, 8-22 is respectfully solicited.

In view of the foregoing amendment and for the reasons set out above, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

Should the Examiner believe that anything further is needed to place the application in condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number below.

Respectfully submitted,


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